

Halo-Free Non-rectifying Contact on Chip with Halo Source/Drain Diffusion

Abstract of the Disclosure

A semiconductor chip includes a semiconductor substrate having a rectifying contact diffusion and a non-rectifying contact diffusion. A halo diffusion is adjacent the rectifying contact diffusion and no halo diffusion is adjacent the non-rectifying contact diffusion. The rectifying contact diffusion can be a source/drain diffusion of an FET to improve resistance to punch-through. The non-rectifying contact diffusion may be an FET body contact, a lateral diode contact, or a resistor or capacitor contact. Avoiding a halo for non-rectifying contacts reduces series resistance and improves device characteristics. In another embodiment on a chip having devices with halos adjacent diffusions, no halo diffusion is adjacent a rectifying contact diffusion of a lateral diode, significantly improving ideality of the diode and increasing breakdown voltage.

Figures